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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,562

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Rudolf Bahnen

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03/17/2008

FAY SHARPE LLP

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CLEVELAND, OH 44114

EXAMINER

DWIVEDI, VIKANSHA S

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,562	<b>Applicant(s)</b> BAHNEN, RUDOLF	
	<b>Examiner</b> VIKANSHA S. DWIVEDI	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (U.S Patent 5,816,782; Hereinafter, Nagayama) in view of Biais (U.S. Patent 5,793,178).

Claim 1: Nagayama discloses a vacuum pump having a pair of Roots rotor shafts 2 and an electric drive motor M, which drives one of the motor shafts 2a. Motor M is a synchronous (Column 6, Lines 2-3) motor that is excited by permanent magnets 5a and 5b (Column 4, Lines 5-17). Nagayama does not disclose a power-limiting device for the motor M. However, Biais discloses a synchronous permanent magnet electric motor that is controlled by a signal applied to an input 29 of a circuit 21 and limits motor power (P) as shown in Figure 4 to a fixed maximum motor power (horizontal line 40) in a limiting range above a fixed rated motor speed, shown as 2000 rpm (Column 4, Lines 38-43).

Claim 2: Biais discloses that the power-limiting means adjusts, in the limiting range, a phase angle between a magnetic field of the rotor and an electrical stator field to an angle other than 90 degrees. Phases 13, 14, and 15 are fed by undulator 11 with alternating currents of 120° phase difference to enable a rotation of the permanent magnet rotor (Column 3, Lines 22-27).

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Claim 3: Biaisi discloses that in the limiting range, i.e. at increased speeds, the stator current must drop (Column 4, Lines 60-62)

Claims 4, 11-14: Biaisi discloses that in the limiting range, adjustment is made of the phase angle between the magnetic field of the rotor and the stator current as a function of the motor speed (Column 4, Lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the pump of Nagayama et al. to include a power-limiting device for the motor as disclosed by Biaisi. This would allow the total inductance of the motor to be maximized (See Abstract of Biaisi) and thus also enable a substantial reduction of the heating (See Biaisi Column 5, Lines 65-66) of the motor rotor of Nagayama et al.

Claim 5: Nagayama discloses that the driven rotor shaft 2a driven by the drive motor M is of cantilevered configuration and is supported without a supporting bearing on a motor-side end, i.e. the same side of molded body 12

Further, with regard to claims 11-14 Nagayama in view of Biaisi discloses the claimed invention as explained above and it is known in the art is that  $P=T*N$ , so at constant Power, Torque and Speed (rpm) are inversely proportional, meaning as rpm increases the torque reduces. As the rpm increases the torque increases, the Power is never constant and as  $N=P/T$ , so as the rpm increases both power and torque increase to certain extent.

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Claim 6: Nagayama shows in Figure 6 that the motor rotor comprises a plurality of permanent magnets 5a arranged on an outside surface of the motor rotor body (Column 4, Lines 42-45).

Claims 7 and 8: Nagayama discloses a rotor enclosure or can 7 which may be nonmetallic, i.e. made of a synthetic resin (Column 3, Line 54), and externally encloses the motor rotor body and the plurality of permanent magnets 5a (Figure 6). The can 7 serves as a vacuum container and provides a gas-tight seal with respect to the motor stator (Column 3, Lines 57-61).

Claim 9: Nagayama discloses a pump cover 9 holding the can 7 and a stator casing 12 surrounding the stator 12 are integrally formed (Column 4, Lines 18-21)

Claim 10: Nagayama and Biais do not disclose specifically that the permanent magnets of the rotor include rare earth elements. However, Biais does suggest the use of rare earth elements by stating that, "This diminution of the heating is a major advantage, notably when temperature-sensitive magnets are used, such as rare-earth magnets" (Column 6, Lines 11-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include permanent magnets of rare-earth elements based on Biais, and also because it would be well known that permanent magnets tend to be stronger with rare earth elements.

***Response to Arguments***

Applicant's arguments filed 12/26/2007 have been fully considered but they are not persuasive. Nagayama discloses a vacuum pump having a pair of Roots rotor shafts 2 and an electric drive motor M, which drives one of the motor shafts 2a. Motor M is a synchronous (Column 6, Lines 2-3) motor that is excited by permanent magnets 5a and 5b (Column 4, Lines 5-17). Biais discloses a synchronous permanent magnet electric motor that is controlled by a signal applied to an input 29 of a circuit 21 and limits motor power (P) as shown in Figure 4 to a fixed maximum motor power (horizontal line 40) in a limiting range above a fixed rated motor speed, shown as 2000 rpm (Column 4, Lines 38-43). Biais discloses that the power-limiting means adjusts, in the limiting range, a phase angle between a magnetic field of the rotor and an electrical stator field to an angle other than 90 degrees. Phases 13, 14, and 15 are fed by undulator 11 with alternating currents of 120° phase difference to enable a rotation of the permanent magnet rotor (Column 3, Lines 22-27).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Nagayama does not deal with the question of compression heat) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Although operational characteristics of an apparatus may be apparent from the specification, we will not read such characteristics into the claims when they cannot be

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fairly connected to the structure recited in the claims. See *In re Self*, 671 F.2d 1344, 1348, 213 USPQ 1, 5 (CCPA 1982). See *In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969) and *In re Winkhaus*, 527 F.2d 637, 188 USPQ 129 (CCPA 1975).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIKANSHA S. DWIVEDI whose telephone number is (571)272-7834. The examiner can normally be reached on M-F, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3683

VSD